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By Hand Delivery

January 25, 1994

Donna R. Searcy, Secretary  
Federal Communications Commission  
1919 M Street, N.W., Room 222  
Washington, D.C. 20554

Re: ET Docket No. 93-7

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JAN 25 1994

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Dear Madam Secretary:

Enclosed for filing are an original and nine copies of the Comments of Mitsubishi Electronics America, Inc. in the matter noted above.

An additional copy to be date stamped and returned with the messenger for our files is also enclosed.

Thank you for your assistance.

Sincerely yours,

Julius Szakolczay  
Vice President  
Advanced Development and  
Strategic Technology Planning

JS/mm

Enclosures

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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C.

In the Matter of )

Implementation of Section 17 of the )  
Cable Television Consumer Protection )  
and Competition Act of 1992 )

Compatibility Between Cable Systems )  
and Consumer Electronics Equipment )

ET Docket No. 93-7

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

COMMENTS OF  
MITSUBISHI ELECTRONICS AMERICA, INC.  
ON NOTICE OF PROPOSED RULE MAKING

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January 25, 1994

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## Table of Contents

Table of Contents . . . . .	i
Summary . . . . .	ii
I. Ongoing Technical Developments Both Enhance the Commission's Opportunity to Achieve Compatibility Through Standards and Require That Such Action Be Taken Expeditiously to Be Successful. . . . .	3
A. The Value of Product Features Will Depend on Compatibility and Competition. . . . .	4
B. Progress in This Proceeding to Date, Though Important, Still Leaves Program Distributors With the Means and Incentive to Resist Standardization and Cause Feature Incompatibilities. . . . .	7
C. The Commission Can and Should Link the Digital TV Standards Process to the Grand Alliance Process. . . . .	7
II. To Achieve True Cable-Consumer Electronics Compatibility, A Digital Cable Television Standard Can and Should Include a Standard for Conditional Access. . . . .	9
A. The biggest obstacle to cable-consumer electronics compatibility is the decoder/converter box that operates according to unique, proprietary conditional access mechanisms. . . . .	10
B. A software-carrier conditional access system combining the security of proprietary hardware systems with the compatibility of "in the clear" systems is nearing final specification and should be included in the decoder interface standard. . . . .	11
III. MELE Supports the NPRM Proposals With Respect to Tuner Bandwidth. . . . .	14
IV. Conclusion. . . . .	15

### Summary

Mitsubishi Electronics America, Inc. (MELA) is supportive of the progress and the process being pursued in this proceeding by both the Commission and the Cable-Consumer Electronics Compatibility Advisory Group (C3AG). MELA also supports the comments presently being submitted by the C3AG, with the exception of the matters on which we comment separately herein.

Cable-consumer electronics compatibility means that consumers, not cable distributors, should decide which features and which consumer products will prevail in the marketplace. This requires two things: **standards** by which program and product services function and **commercial availability** of the products that implement them.

First, the Commission should link a standard for digital cable TV to the broadcast standard for HDTV. Each element of a standard for digital cable TV should be hierarchically linked to the "Grand Alliance" standard, and finalized and documented within one year after the completion of the analogous step in the HDTV process. Making this simple commitment to conform digital standards for cable and broadcast will avoid the investment of billions of dollars in incompatible systems and provide clear guidance and predictability for industry.

Second, the Commission should compel a software implementation of the proposed decoder interface. The decoder interface proposed by the C3AG and approved in the

Commission's proposed rules cannot eliminate exclusive operator-provided consumer equipment, and attendant compatibility problems, unless there is a further specification that limits the mandatory operator-provided portion to software. A subcommittee of the C3AG joint engineering committee has made extraordinary progress in developing an inexpensive "conditional access card," which isolates all security elements into one removable medium. If properly guided, the work of the C3AG joint engineering committee can result in a conditional access system in which the cable operator need provide a software carrier only; all other hardware -- set-top box, decoder interface module, fully integrated TV or VCR -- can and should be available to consumers on an open, competitive market. Any compatibility problem that can be solved by "in the clear" transmission can also be solved by the National Renewable Security System (NRSS) standard that is almost at hand.

Finally, MELA supports the Commission's proposal for a 1 GHz upper boundary on channel range. Current television tuners cover the frequency spectrum to 800 MHz. These tuners will be substantially redesigned to comply with the new rules. In this redesign process, it would be prudent to adopt the NPRM limit of 1002 MHz. No "migration path" is necessary. Any further boundary change should also occur through Commission rulemaking process.

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**COMMENTS OF MITSUBISHI ELECTRONICS AMERICA, INC.  
ON NOTICE OF PROPOSED RULE MAKING**

Mitsubishi Electronics America, Inc. (MELA)

respectfully submits these comments responding to the Federal Communications Commission Notice of Proposed Rule Making (NPRM) of December 1, 1993. MELA filed comments on March 19, 1993, in response to the original Notice of Inquiry, and has been a consistent participant, on both engineering and policy levels, in the Cable-Consumer Electronics Compatibility Advisory Group ("C3AG"). MELA sells an extensive line of consumer electronics products, including TVs and VCRs, in the United States. An affiliate, Mitsubishi Consumer Electronics America, Inc., operates several consumer electronics manufacturing plants in the United States, including those that supply TVs to MELA.

MELA is generally supportive of the progress and the process being pursued in this proceeding by both the Commission and the C3AG. MELA also supports the comments

presently being submitted by the C3AG, with the exception of the matters on which we comment separately herein.

MELA's chief concern is with respect to **standards**.

Paragraph 34 of the NPRM commits the Commission in principle to digital transmission standards for cable TV, and requests comments on the attributes that need to be standardized, as well as specific implementations. MELA believes that it is vital that the Commission act now to set in motion two specific determinations with respect to such standards:

- (1) that digital standards for cable TV be linked, hierarchically and procedurally, to the Commission's **standards for digital broadcast HDTV**, and
- (2) that digital standards for cable TV include a system of **conditional access through a software-carrier** provided by the cable operator.

MELA is concerned that there is a limited "window" of opportunity for the Commission to act. If clear requirements and dates are not set soon, the Commission's future efforts will be overwhelmed by investments in incompatible proprietary systems. Recent technical achievements mean that the Commission can comply very specifically with the requirements of Section 624A(c)(2)(C) of the Communications Act.<sup>1/</sup> Before finalizing the rules under consideration in this proceeding, the Commission should take all necessary steps to set a clear course with

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<sup>1/</sup> Enacted by Section 17 of the Cable Television Consumer Protection and Competition Act of 1992, Pub. L. No. 102-385, 106 Stat. 1460.

respect to these standards -- even if it means requiring an additional round of comments before finalizing the rules.

I. Ongoing Technical Developments Both Enhance the Commission's Opportunity to Achieve Compatibility Through Standards and Require That Such Action Be Taken Expeditiously to Be Successful.

In seeking to comply with the congressional mandate, the Commission is truly aiming at a moving target. Congressional intention remains clear, but technology, and regulatory and commercial developments, change. Indeed, much has changed since the Commission's Notice of Inquiry in this proceeding. Since the date of that Notice:

- A "Grand Alliance" has been formed with respect to setting standards for digital broadcast of HDTV.
- The Commission can now envision a firm timetable for documentation of Grand Alliance digital compression and transmission standards, including conditional access.
- The work of the Moving Picture Experts Group (MPEG), incorporated by the Grand Alliance, has brought unexpected commonality to digital television techniques across varying degrees of resolution.
- The Clinton Administration has announced a national commitment to a National Information Infrastructure (NII), of which existing cable TV systems clearly will be a part. As implemented through cable television and telephone systems, the NII is to be based on universal access for consumers, open access to other program and information providers, and standards.
- Cable television and telephone networks have begun to merge in theory and in fact; proposals are pending in Congress and forthcoming from the Administration to confirm these mergers.
- Individual cable operators are close to offering new, digital television systems, through sophisticated set-top devices, that promise a range of information, communication, and entertainment services. So far, there is little incentive to make these systems



standard, interoperable, or consumer electronics-compatible.

- Progress in conditional access systems, reported by a subcommittee of the C3AG's joint engineering committee, means that implementation of conditional access through specialized hardware -- the core cause of compatibility problems -- is no longer necessary. All hardware can be standardized and open to competition, while cable operators provide a software carrier only.

These developments mean not only that the Commission can act with greater boldness and precision than previously contemplated, but also that, to meet the statutory mandate, it is compelled to do so.

A. The Value of Product Features Will Depend on Compatibility and Competition.

In introducing the amendment that ultimately became Section 624A of the Communications Act, Senator Leahy made it clear that the problem of cable-consumer electronics compatibility was neither trivial nor static. He stressed that a solution would have to (1) be based on new standards, and (2) rely on competition. In his January 29, 1992 floor statement, Senator Leahy said:

. . . We all know that when competition is lively and vigorous, companies leapfrog each other to provide consumers the best and most user-friendly choices. Look at computers. Look at long distance telephone service. Look at televisions and VCR's. But when the consumer is captive, monopolies can do what is best for monopoly and let the customer be damned.

. . . .

The effort to create a user-friendly connection between cable systems and consumer electronics is more important now than ever before. New technologies that are beginning to come on line -- such as digital compression . . .

-- will force more and more consumers to rent converter boxes and lose the full benefits of their televisions and VCR's. The time to insist on new standards that will create a consumer-friendly environment for years to come is now.<sup>2/</sup>

More specifically, Section 624A(c)(2)(C) requires that FCC regulations "promote the commercial availability, from cable operators and retail vendors that are not affiliated with cable systems, of converter boxes."

Even since the beginning of this proceeding, the term "converter box" has taken on new meaning -- an evolution clearly anticipated by Senator Leahy and the legislation. This term is now clearer in its significance and implications. It is now evident that "cable television" is to be more than an entertainment programming service. Wideband cable and telephone lines are to be gateways to a unified national infrastructure, such as the NII, that will merge entertainment, communication, information, and other services. The business of packaging this information for the public, through consumer electronics products, will be one of selling new product features that combine, coordinate, and package the information and entertainment services that become available.

The very idea of compatibility is for consumers to have the option of choosing among features, and products that implement them, themselves. Consumer electronics-cable

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<sup>2/</sup> 138 Cong. Rec. S583 (daily ed. Jan. 29, 1992) (statement of Senator Leahy).

compatibility means that it should be the consumer, not the program distributor, who decides which features and which implementing hardware will prevail in the marketplace. As indicated by Senator Leahy's floor statement, this will require two things: **standards** by which features can function and to which products can be built, and **commercial availability** of the services and hardware that, together, comprise a product feature.

Developments since the enactment of the statute, and since the Notice, have given the Commission tools not heretofore available. First, the C3AG and its joint engineering committees have made significant progress toward a "decoder interface" standard through which security-related functions can be made transparent to TV and VCR features. Second, the Grand Alliance has made extraordinary progress toward a broadcast digital HDTV standard that can, and should, bear a relationship to a cable digital TV standard.

The Commission has the opportunity now to harmonize the relationship between digital broadcast television and digital cable television, hence achieve consumer-cable compatibility. The alternative is to allow practices to develop independently, leading ultimately to diverging approaches and incompatibilities similar to those that have made this proceeding necessary.

B. Progress in This Proceeding to Date, Though Important, Still Leaves Program Distributors With the Means and Incentive to Resist Standardization and Cause Feature Incompatibilities.

Cable operators no doubt recognize the potential significance of the "gateway" they now control. Specific economic interests may dictate that they try to stay with proprietary features, sold through their own systems, for as long as possible.

Despite the progress represented by the decoder interface, this one standard is not sufficient to assure that cable operators will encourage movement from set-top to decoder interface connections, or that their "security" hardware supplied through the decoder interface will allow real competition in offering product features to consumers. Unless the Commission goes further now, program distributors will retain powerful incentives and means to keep features, and hardware, proprietary, nonstandard, and noncompatible.<sup>3/</sup>

C. The Commission Can and Should Link the Digital TV Standards Process to the Grand Alliance Process.

One important tool available to the Commission, in taking the necessary further steps, is to take advantage of

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<sup>3/</sup> An example of a feature left within cable operator control by happenstance but developed into a non-standard profit center is the cable box remote control. Allowing cable operators to furnish any hardware exclusively will inevitably provide incentives, difficult to regulate, for similar monopolization and extra charges for potentially competitive features.

the progress toward a digital broadcast HDTV standard. A cause of feature incompatibility has been the divergent requirements on broadcast and cable reception, even though each was derived from the same original standard. There is every reason, now, to link these services in their standardization and documentation, to avoid their future divergence and incompatibility.

Without common standards and protocols, the NII could become instead the Tower of Babel. It will be difficult enough to merge standards used in what are now separate industries. For the Commission to conclude this proceeding without ensuring that, at least, within the existing "cable TV" industry there is commonality would be a tragic lost opportunity. There are compelling reasons, additionally, to link the standard for digital cable TV, substantively and procedurally, with that for broadcast digital HDTV.

Both the Commission and the C3AG have recognized that digital standards ultimately are necessary for compression and transmission of signals. Otherwise, product features would likely remain within the control of program distributors. Decompression and other features entirely unrelated to security would remain built into both operator-provided decoder interface modules and operator-provided set-top boxes. In the absence of a national standard, it would be impossible to offer TVs and VCRs with such features built in, and extraordinarily difficult to offer them in competitive boxes or modules at retail.

Yet future TVs, VCRs, and other products are going to have to have digital decompression and demodulation circuitry built in if they are going to receive and process HDTV broadcasts. For the Commission, having acknowledged the necessity of digital cable standards, to allow proprietary systems to flourish that are incompatible with broadcast techniques would guarantee the sort of redundancy and incompatibility that the law, and this proceeding, seek to avoid.

Accordingly, the Commission should decide, in this phase of this proceeding, to link a standard for digital cable TV hierarchically and procedurally to the broadcast standard for HDTV. It should be possible to finalize and document such hierarchical standards for digital cable TV within one year of the completion of the analogous step in the HDTV process. Making this simple commitment, now, will avoid the investment of billions of dollars in incompatible systems, and provide clear guidance and predictability, for industry, with respect to all aspects of the standardization process.

**II. To Achieve True Cable-Consumer Electronics Compatibility, A Digital Cable Television Standard Can and Should Include a Standard for Conditional Access.**

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This proceeding grew out of frustration, welling up in consumers, over the impediments to compatibility caused by special hardware necessary for reception of cable channels.

Such hardware effectively filters out all but the selected channel, making the rest of the system inaccessible to features contained in or activated by other hardware in the home. Thus far the Commission apparently has assumed that a physical, operator-provided "box" or decoder interface "module" is a necessary evil in the absence of a delivery system that provides all channels "in the clear."<sup>4/</sup> Such an assumption, however, has been made obsolete by advancing technology -- so should no longer pose an obstacle to consumer compatibility and choice.

- A. The biggest obstacle to cable-consumer electronics compatibility is the decoder/converter box that operates according to unique, proprietary conditional access mechanisms.

MELA does not question the right of program distributors to be in the hardware business, and welcomes the competition. MELA does not believe it is necessary or appropriate, however, for program distributors to be in the hardware business on an exclusive basis. Reasons that have been asserted for such exclusivity, and denial of competition, have been (a) non-standard features, such as descrambling and access control over pay-per-view, and (b) control over signal security measures limiting services to authorized customers. The digital age could add a third

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<sup>4/</sup> Paragraph 30 of the NPRM discusses such an either/or choice for cable operators.

justification -- non-standard digital transmission and compression techniques.

The requirement of a non-standard piece of hardware between the program and the customer's purchased equipment is the root cause of this proceeding. The decoder interface planned thus far by the C3AG and approved in paragraph 19 of the NPRM cannot eliminate the exclusive operator-provided hardware unless there is a further specification that allows the operator-provided portion to be software only, through a software carrier provided by the operator.

The choice of such a software implementation of the decoder interface is not merely the choice of one means to an end over another. Rather, it is a way to be rid of the fundamental compatibility problem -- the provision of system hardware that cannot be standardized or subject to competition. With this object omitted from the system, all future hardware integration of features will be both compatible and subject to competition.

- B. A software-carrier conditional access system combining the security of proprietary hardware systems with the compatibility of "in the clear" systems is nearing final specification and should be included in the decoder interface standard.

Much of the progress of the C3AG has occurred as a result of the cooperative effort of specialized committees reporting to the joint engineering committee. One such subcommittee, devoted to research and development of a National Renewable Security System (NRSS) has made



extraordinary progress. The completion of a specification that will meet all of the rigorous requirements of such a system has been reported, by the subcommittee, to be only a few months away.

As reported to a recent meeting of the joint engineering committee, the goal of the NRSS subcommittee is "to further isolate the security components in the designs of present consumer electronics systems." Cable systems, on the one hand, need to maintain full control over the security domain. Consumer electronics products, on the other hand, ideally should be universally available and subject to competition. Meeting both goals means (1) isolating the security component (2) on a replaceable element (3) that is entirely self-contained (4) preferably using an existing carrier or "form factor" (5) available at reasonable cost.

On January 11 of this year, the co-chairman of the NRSS subcommittee presented a system that meets these requirements. As described in the January 19 report of the NRSS subcommittee co-chairs to the joint engineering committee:

On January 11, the NRSS co-chairman presented the concept of a Conditional Access card. This card can provide security for digital consumer electronics. This card isolates all security elements into one removable medium, is inexpensive and uses an existing form factor. It will allow all types of digital consumer electronics to be developed independent of the conditional access system. This card meets all of the system attributes required by the committee.

According to the report of the NRSS co-chairmen, an additional goal of the subcommittee is "to allow the application of this standard to Grand Alliance and MPEG2 system level specifications and demonstrations." A "straw man" specification is to be ready in March; the subcommittee hopes to complete the specification in April.

While the NRSS subcommittee's work is not the only proposed implementation of the decoder interface discussed in this proceeding that eliminates or isolates the proprietary system security hardware,<sup>5/</sup> its pendency in the C3AG proceedings is surely noteworthy for the Commission. This work means, simply, that any future compatibility problem that can be solved by "in the clear" transmission can also be solved by the NRSS standard that is almost at hand.

Given the value placed by the Commission on in-the-clear transmission to the extent it is available (e.g., NPRM ¶ 30), the extraordinary progress in perfecting an NRSS with the same compatibility characteristics ought to be recognized by the Commission at this time, and incorporated into this phase of the proceeding. The Commission should require that the joint engineering committee, in presenting its proposed standard for a decoder interface on the schedule previously proposed, implement this interface by means of an NRSS standard as described above. At the very

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<sup>5/</sup> See Reply Comments of Titan Corporation at 3-8, ET Dkt. No. 93-7 (filed Aug. 10, 1993).

least, the Commission should require further comments, on such a requirement, at this time.

Implementing conditional access through unique, proprietary measures is an obsolete luxury that consumers can no longer afford. If properly guided, the work of the C3AG joint engineering committee can result in a conditional access system as to which the cable operator need provide a software carrier only. All other hardware -- set-top box, decoder interface module, fully integrated TV or VCR -- can and should be available to consumers on the open market.

### III. MELA Supports the NPRM Proposals With Respect to Tuner Bandwidth.

MELA supports the NPRM's proposal for a 1 GHz upper boundary on channel range. Paragraph 21 of the NPRM proposes that cable ready TVs and VCRs be able to tune up to 1 GHz. The Commission requests comment on whether a 1 GHz upper boundary represents an appropriate range of channels for cable ready equipment, and whether some "migration plan" would be appropriate to achieve this range.

Current television tuners cover the frequency spectrum to 800 MHz. These tuners will be substantially redesigned in the future to comply with the proposed new requirements. In the process of this redesign, it would be prudent to move to the limit of 1002 MHz, as proposed by the NPRM.

As a redesign is necessary at this time anyway, a migration path in this case does not provide the industry any relief. More useful, in eliminating possibility for

confusion, and assuring compatibility, will be setting 1002 MHz as a limit as it applies to the use of the spectrum by cable operators. This limit should be expanded as needed through existing Commission rulemaking processes only.

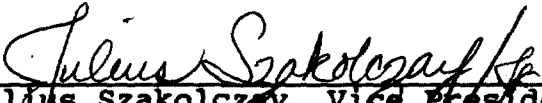
MELA takes these positions out of a belief that consumers are best served by predictability and compatibility. The standard proposed by the Commission gives ample room for cable service and consumer electronics equipment to accommodate technological change, yet be offered on a compatible and efficient basis. When, and if, it is appropriate to consider revising the 1 GHz figure, a Commission proceeding would allow all affected parties notice and opportunity to comment.

#### IV. Conclusion.

MELA believes that through this proceeding, the Commission and the C3AG have already taken very constructive steps in complying with Section 17 of the 1992 Cable Act. It believes that the measures recommended herein will make possible a conclusion to this proceeding that is truly successful for everyone, most of all consumers. MELA has welcomed the opportunity to provide comments and looks

forward to constructive participation in the balance of this proceeding.

Respectfully submitted,

  
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